

## CLAIMS

What is claimed is:

1. A method for impregnating a pressure conduction composite with an additive comprising the step of suffusing said pressure conduction composite within a bath of said additive.

2. A current control device comprising:

(a) two electrodes; and

(b) a pressure conduction composite disposed between said electrodes, said electrodes communicating a compressive load applied onto said electrodes into said pressure conduction composite, said pressure conduction composite is porous and filled with a temperature sensitive material capable of exerting a temperature dependent force.

3. The current control device of claim 2, wherein said electrodes are porous.

4. A current control device comprising:

(a) a pressure plate electrically nonconductive and movable;

(b) a plate electrically nonconductive and immovable; and

(c) a pressure conduction composite disposed between said pressure plate and said plate, said pressure plate communicating a compressive load applied onto said pressure plate into said pressure conductive composite.

5. The current control device of claim 4, wherein said pressure plate, said plate, and said pressure conduction composite are porous.

6. The current control device of claim 4, furthering comprising two electrodes separately disposed, said pressure conduction composite contacting said electrodes and providing an

1 electrical path between said electrodes when compressed.

7. A current control device comprising:

(a) at least two pressure plates electrically nonconductive and movable;

5 (b) a pressure conduction composite disposed between said pressure plates,  
said pressure plates communicating a compressive load applied onto said pressure plates  
into said pressure conductive composite.

8. The current control device of claim 7, wherein said pressure plates and said pressure  
conduction composite are porous.

9. The current control device of claim 7, furthering comprising two electrodes separately  
10 disposed, said pressure conduction composite contacting said electrodes and providing an  
electrical path between said electrodes when compressed.

10. A current control device comprising:

(a) four pressure switches, each said pressure switch comprised of a pressure  
conduction composite disposed between two conductive pressure plates;

15 (b) two electrodes, each said electrode aligned in series between two said  
pressure switches, said pressure switches electrically connected whereby said electrodes  
are electrically connected parallel;

(c) two nonconductive pressure plates, said nonconductive pressure plates  
communicating a compressive load into said pressure switches; and

20 (d) a restoration element disposed between said electrodes and electrically  
isolated from said electrodes, said restoration element decompressing said pressure

22 switches when said compressive load is removed.

- 1 11. The current control device of claim 10, further comprising at least two said devices electrically connected parallel.
12. The current control device of claim 11, further comprising a current measuring device electrically connected to said current control device.
- 5 13. The current control device as in one of claims 2-11, further comprising at least one actuator comprised of a peizoelectric material, said actuator applies said compressive load.
14. The current control device as in one of claims 2-11, further comprising at least one actuator comprised of a peizoceramic material, said actuator applies said compressive load.
- 10 15. The current control device as in one of claims 2-11, further comprising at least one actuator comprised of an electrostrictive material, said actuator applies said compressive load.
16. The current control device as in one of claims 2-11, further comprising at least one actuator comprised of an magnetostriuctive material, said actuator applies said compressive load.
- 15 17. The current control device as in one of claims 2-11, further comprising at least one actuator comprised of a shape memory alloy, said actuator applies said compressive load.
18. The current control device as in one of claims 2-11, further comprising at least one piezo-controlled pneumatic actuator, said actuator applies said compressive load.

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